

Notice of Allowability

Application No.

09/614,371

Examiner

Minh Dieu Nguyen

Applicant(s)

LUTTRELL ET AL.

Art Unit

2137

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to July 8, 2005.
2. ☒ The allowed claim(s) is/are 1-26.
3. ☒ The drawings filed on 12 July 2000 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


EMMANUEL C. MOISE
SUPERVISORY PATENT EXAMINER

PD

EXAMINER'S AMENDMENT


1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Brian Mattson on 9/2/2005.

2. The application has been amended as follows:

Please amend claim 14: The system of "claim 1" as The system of "claim 12".

The attached claims start on page 3.


EMMANUEL L. MOISE
SUPERVISORY PATENT EXAMINER

IN THE CLAIMS:

Claim 1 (previously presented): A method for embedding information into a digitally compressed bitstream, the method comprising the steps of:

providing a compressed bitstream;

determining a type of coding of the compressed bitstream wherein the type of coding is inter coding or intra coding;

identifying locations in the bitstream for embedding data bits into the bitstream;

extracting a plurality of data bits from the locations of the bitstream;

producing embedded data bits based on the plurality of data bits from the bitstream wherein the embedded data bits are based on the coding of the compressed bitstream; and

replacing original codewords in the bitstream with alternate codewords having the embedded data bits.

Claim 2 (original): The method of Claim 1 further comprising the step of:

scanning the bitstream to find spatial locations for embedding data bits.

Claim 3 (original): The method of Claim 1 further comprising the step of:

scanning the bitstream to find temporal locations for embedding data bits.

Claim 4 (original): The method of Claim 1 further comprising the step of:

scanning the bitstream to find spatial or temporal locations for embedding data bits that can be reliably recovered by an error resilience decoder if the bitstream is subject to errors during transmission.

Claim 5 (original): The method of Claim 1 further comprising the step of:

finding blocks wherein the blocks have a last non-zero coefficient having an index number of less than 63.

Claim 6 (original): The method of Claim 1 wherein the original codewords have a triplet form of EVENT = (RUN, LEVEL, LAST) and further wherein final codewords in the bitstream have a "LAST" coefficient = 1.

Claim 7 (original): The method of Claim 6 further comprising the step of:

replacing the final codewords so that the final codewords have a "LAST" coefficient = 0.

Claim 8 (original): The method of Claim 6 further comprising the step of:

appending alternate codewords to the final codewords in the bitstream.

Claim 9 (original): The method of Claim 8 wherein the alternate codewords = "0111s" wherein the "s" corresponds to the embedded

data bit.

Claim 10 (original): The method of Claim 1 wherein the bitstream is compliant with international standards.

Claim 11 (original): The method of Claim 1 wherein the bitstream is a video bitstream.

Claim 12 (previously presented): A system for embedding information into a digitally compressed bitstream, the system comprising:

a compressed bitstream;

means for determining a type of coding of the compressed bitstream wherein the type of coding is inter coding or intra coding;

means for identifying locations in the compressed bitstream wherein the locations are based on the type of coding of the compressed bitstream;

embedded data bits produced by encrypting a plurality of data bits at the locations in the compressed bitstream; and

means for replacing original codewords in the bitstream with alternate codewords having the embedded data bits.

Claim 13 (original): The system of Claim 12 further comprising:

means for scanning the bitstream to locate blocks wherein the blocks contain the original codewords.

Claim 14 (currently amended): The system of Claim ~~[[1]]~~ 12 wherein the bitstream has final codewords and further wherein the locations in the bitstream for embedding data into the bitstream correspond

to the final codewords in the bitstream.

Claim 15 (original): The system of Claim 13 wherein the blocks have a last non-zero coefficient having an index number of less than 63.

Claim 16 (original): The system of Claim 12 wherein the codewords have a triplet form of EVENT = (RUN, LEVEL, LAST) and further wherein final codewords in the bitstream have a "LAST" coefficient = 1.

Claim 17 (original): The system of Claim 12 further comprising:

means for replacing final codewords in the bitstream with replaced codewords wherein the replaced codewords have a LAST coefficient = 0.

Claim 18 (original): The system of Claim 17 further comprising:

means for appending alternate codewords to the replaced codewords wherein the appended codewords = "0111s" wherein the "s" represents the embedded data bit.

Claim 19 (original): The system of Claim 13 wherein the compressed bitstream corresponds to a compressed video bitstream.

Claim 20 (previously presented): A method for embedding information into a digitally compressed bitstream, the method comprising the steps of:

providing a compressed bitstream;

identifying locations in the bitstream for embedding data into the bitstream;

replacing original codewords in the bitstream with alternate

codewords having embedded data bits; and

finding blocks wherein the blocks have a last non-zero coefficient having an index number of less than 63.

Claim 21 (previously presented): A method for embedding information into a digitally compressed bitstream, the method comprising the steps of:

providing a compressed bitstream;

identifying locations in the bitstream for embedding data into the bitstream;

replacing original codewords in the bitstream with alternate codewords having embedded data bits wherein the original codewords have a triplet form of $\text{EVENT} = (\text{RUN}, \text{LEVEL}, \text{LAST})$ and further wherein final codewords in the bitstream have a "LAST" coefficient = 1; and

replacing the final codewords so that the final codewords have a "LAST" coefficient = 0..

Claim 22 (previously presented): A method for embedding information into a digitally compressed bitstream, the method comprising the steps of:

providing a compressed bitstream;

identifying locations in the bitstream for embedding data into the bitstream;

replacing original codewords in the bitstream with alternate codewords having embedded data bits wherein the original codewords

have a triplet form of EVENT = (RUN, LEVEL, LAST) and further wherein final codewords in the bitstream have a "LAST" coefficient = 1; and

appending alternate codewords to the final codewords in the bitstream.

Claim 23 (previously presented): The method of Claim 22 wherein the alternate codewords = "0111s" wherein the "s" corresponds to the embedded data bit.

Claim 24 (previously presented): A system for embedding information into a digitally compressed bitstream, the system comprising:

- a compressed bitstream;
- means for identifying locations in the compressed bitstream;
- means for replacing original codewords in the bitstream with alternate codewords having embedded data bits;

- means for scanning the bitstream to locate blocks wherein the blocks contain the original codewords wherein the blocks have a last non-zero coefficient having an index number of less than 63.

Claim 25 (previously presented): A system for embedding information into a digitally compressed bitstream, the system comprising:

- a compressed bitstream;
- means for identifying locations in the compressed bitstream;
- means for replacing original codewords in the bitstream with alternate codewords having embedded data bits; and

- means for replacing final codewords in the bitstream with

replaced codewords wherein the replaced codewords have a LAST coefficient = 0.

Claim 26 (previously presented): A system for embedding information into a digitally compressed bitstream, the system comprising:

a compressed bitstream;

means for identifying locations in the compressed bitstream;

means for replacing original codewords in the bitstream with alternate codewords having embedded data bits;

means for replacing final codewords in the bitstream with replaced codewords wherein the replaced codewords have a LAST coefficient = 0; and

means for appending alternate codewords to the replaced codewords wherein the appended codewords = "0111s" wherein the "s" represents the embedded data bit.

Allowable Subject Matter

3. This action is in response to the communication dated July 8, 2005 with the amendments to claims 1 and 12.

4. Claims 1-26 are allowed.

5. The following is an examiner's statement of reasons for allowance:

The present invention is directed to method and system for embedding binary data sequences into video bitstream which may be utilized in a Digital Right Management (DRM) system. Each independent claim (claims 1, 12, 20-22 and 24-26) identifies the uniquely distinct features as followed:

Claim 1 identifies the embedded data bits are based on the coding of the compressed bitstream.

Claim 12 identifies the locations are based on the type of coding of the compressed bitstream.

Claims 20 and 24 identify the step of finding blocks wherein the blocks have a last non-zero coefficient having an index number of less than 63.

Claims 21 and 25-26 identify the step of replacing the final codewords so that the final codewords have a "LAST" coefficient = 0.

Claim 22 identifies the step of appending alternate codewords to the final codewords in the bitstream.

Claims 23 and 26 identify the alternate codewords = "0111s" wherein the "s" corresponds to the embedded data bit.

The closest prior arts, Isnardi (6,687,384), Shur (6,330,672), Tewfik et al. (6,226,387), Heinzelman et al. (6,754,277), Zhu (5,821,887) and Uz et al. (5,682,204) fail to anticipate or render the above limitations obvious.

4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh Dieu Nguyen whose telephone number is 571-272-3873. The examiner can normally be reached on M-F 6:00-2:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Emmanuel Moise can be reached on 571-272-3865. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2100.

Minh Dieu Nguyen
Examiner
Art Unit 2137


mdn
9/2/05